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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,421	05/05/2006	Ki Ju Kang	P/4761-4	1653

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EXAMINER	
VESRA, DINESH K	
ART UNIT	PAPER NUMBER
3633	
MAIL DATE	DELIVERY MODE
02/05/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/578,421	KANG ET AL.	
	Examiner	Art Unit	
	Dinesh Vesra	3633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 May 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/5/2006, 11/30/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the reinforced composite material manufactured by filling with a resin, a ceramic, or a metal the empty space of the three-dimensional wire-woven cellular light structure (Claims 7, 8, 15, and 16) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: Page 12, line 12 reads "six orientional-wire" which appears to be a mistake; and page 12, line 18 reads "so as to an equilateral triangle" which also appears to be a mistake.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

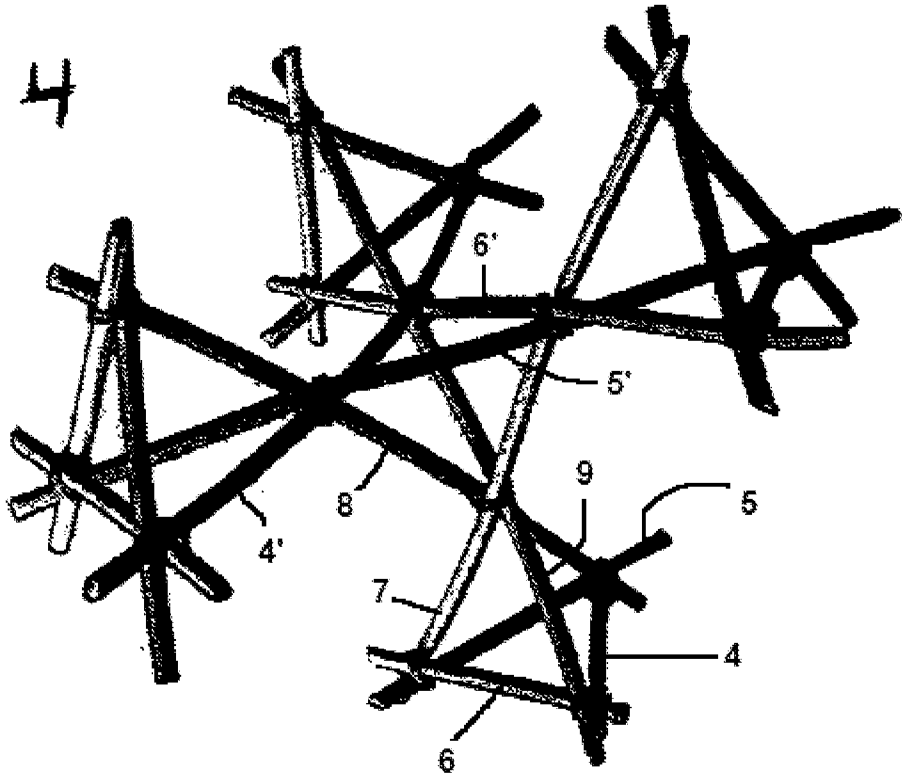
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-6 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Snelson (US Patent Application Publication 2002/0081936 A1).** Snelson discloses a three-dimensional wire-woven cellular light structure (see Fig. 4 below) formed of six groups of orientational-continuous-wires intercrossed with each other at 60 degrees or 120 degrees of angles in a three-dimensional space, a unit cell of the cellular light structure comprising: a first regular tetrahedron member formed of a first to sixth wires, the first regular tetrahedron member being constructed in a such a manner that the first wire (4), the second wire (5), and the third wire (6) are intercrossed in a plane to form an equilateral triangle, the fourth wire (7) is intercrossed with the

intersection point of the second wire (5) and the third wire (6), the fifth wire (8) is intercrossed with the intersection point of the first wire (4) and the second wire (5), and the sixth wire (9) is intercrossed with the intersection point of the third wire (6) and the first wire (4), the fourth wire (7), the fifth wire (8), and the sixth wire (9) being intercrossed with one another at a single reference intersection point; and a second regular tetrahedron member contacted with the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member, the second regular tetrahedron member being constructed in such a manner that the fourth wire (7), the fifth wire (8), and the sixth wire (9) pass the reference intersection point and extend further, each o a group of wires (4', 5', and 6') is intercrossed with the two wires selected from the extended fourth, fifth and sixth wires, the group of wires (4', 5' and 6') being in parallel with the first wire (4), the second wire (5), and the third wire (6) respectively; wherein the wires are intercrossed with each other at 60 degrees or 120 degrees, and the unit cell is repeated in a three-dimensional pattern, thereby forming a truss-type structure (though the reference does not specifically teach these angles, it does teach that the structures are tetrahedral, which inherently form these angles); wherein among the six groups of orientational-wires, three groups of orientational-wires forming a vertex of the first or second regular tetrahedron member are intercrossed clockwise or counterclockwise when seen from the front of the vertex (see Fig. 4); wherein the first and second regular tetrahedron members have a similarity ratio of 1:1 (see Fig. 4); wherein the first and second regular tetrahedron member have a ratio of similarity in the range of 1:1 to 1:10 (see Fig. 4);

wherein the wires are any one selected from the group consisting of metal, ceramics, synthetic resin, and fiber-reinforced synthetic resin (Paragraph 0034); and wherein the intersection point of the wires is bonded by any one selected from the group consisting of a liquid- or spray-form adhesive, brazing, soldering, and welding (Paragraph 0046).

Fig. 4



Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snelson in view of Ritter et al. (US Patent Application Publication 2001/0010140 A1).** Snelson discloses the structure as set forth above, but does not disclose a reinforced composite material manufactured by filling with a resin, a ceramic or a metal the empty space of the structure. Ritter et al. discloses a building element with spaces that are filled with a resin (8 - Paragraph 0038). At the time of the invention, it would have been obvious to one of ordinary skill in the art to provide the structure of Snelson with a resin filling in view of the teachings of Ritter et al. The motivation for doing so would be to provide insulation as well as to strengthen the structure.

Regarding claims 9-16, all of the claimed elements were known in the prior art as evidenced above, and one of ordinary skill in the art could have combined the elements as claimed, or substituted one known element for another, using known methods with no change in their respective functions. Such a combination would have yielded predictable results to one of ordinary skill in the art at the time t he invention was made, since the elements perform as expected and thus the results would be expected. Therefore, it would have been further obvious to one of ordinary skill in the art at the time of the invention to provide a method of fabricating a three-dimensional wire-woven cellular light structure as discussed in detail above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dinesh Vesra whose telephone number is (571) 270-

5221. The examiner can normally be reached on Monday - Thursday 9:00 a.m. - 7:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Glessner can be reached on (571) 272-6843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dinesh Vesra/
Examiner, Art Unit 3633

/Brian E. Glessner/
Supervisory Patent Examiner, Art Unit 3633